

Machine Learning 6.867 - Project

December 5, 2015

1 Introduction

2 Mean-Field Variational Bayes

Mean-field variational Bayes is a method for approximating the posterior distribution. In general, we have unknown parameters $\theta_1, \theta_2, \dots, \theta_n$ that we have priors on, and our objective is to find the joint distribution $p(\theta_1, \theta_2, \dots, \theta_n)$. Assuming that our approximate distribution is in the family $Q = \{q : q(\theta_1, \theta_2, \dots, \theta_n) = q(\theta_1)q(\theta_2) \dots q(\theta_n)\}$, we find $q^* \in Q$ that minimizes the KL-divergence with p , i.e. $q^* = \min KL(q||p)$.